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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,526	03/29/2004	Kong Weng Lee	70030845-1	3297

7590 09/12/2005

AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER
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MAKIYA, DAVID J

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/812,526

Applicant(s)

LEE ET AL.

Examiner

David J. Makiya

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*Am*

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/7/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because the specification fails to sufficiently support claims 6, 7, 13, and 14. The claims refer to a luminescent material that contradicts the specification which describes the material as reflective. Appropriate correction is required.

### ***Claim Objections***

Claims 2-7 are objected to because the light emitting diode does not have a cavity. For examination purposes, "The light emitting diode" on the first line of each claim will be read "The light emitting diode package." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 7, 13, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims contradict the specification because the materials discussed in the disclosure are reflective and not luminescent and phosphorus is not reflective, which is a stated objective of the invention.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga (US Patent 6,355,946) in view of Collins III et al. (US Pub. No. 2005/0184387).

With respect to claim 1, Ishinaga teaches a light emitting diode package X2 comprising a cavity 50a comprising an integrated substrate 1A for mounting a light emitting diode 3A wherein the cavity and the integrated substrate can be manufactured simultaneously (Figure 5) and wherein the cavity is shaped to focus light in a predetermined direction and a metallic coating 52b on a portion of the ceramic substrate for reflecting light in a predetermined direction (Column 5, Lines 16-21). However, Ishinaga fails to teach the cavity to be made of a ceramic material. Collins III et al. teaches a light emitting diode package (Figure 5) where the cavity 64 is made of a ceramic material (Paragraph 34). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitting diode package of Ishinaga with the teachings of Collins III et al. because making the cavity of ceramic provides “a conductive heat path for integrated circuits” (Paragraph 18) and provides excellent insulating and heat-resistant properties.

With respect to claim 2, Ishinaga teaches the light emitting diode package wherein the cavity is substantially a rectangular shaped cavity (Figure 8).

With respect to claim 3, Ishinaga teaches the light emitting diode wherein the cavity is substantially a trapezoidal shaped cavity (Figure 7).

With respect to claim 4 Ishinaga teaches the light emitting diode wherein the cavity is substantially an oval shaped cavity (Figure 2).

With respect to claim 5 Ishinaga teaches the light emitting diode wherein the cavity is substantially a circular shaped cavity (Figure 12).

With respect to claim 8, Ishinaga teaches a method for manufacture of a light emitting diode package comprising forming a ceramic cavity having a bottom and a top and comprising an integrated substrate for mounting a light emitting diode wherein the cavity is shaped to focus light in a predetermined direction (Column 4, Lines 43-46), coating a portion of the ceramic cavity with a light reflective material (Column 5, Lines 16-21), positioning a light emitting diode on the substrate (Column 4, Lines 3-10) and depositing an optically transparent material in the cavity to protect the light emitting diode (Column 4, Lines 25-29).

With respect to claim 9, Ishinaga teaches the method wherein forming the ceramic cavity comprises forming a cavity that is substantially rectangular shaped (Figure 8).

With respect to claim 10 Ishinaga teaches the method wherein forming the ceramic cavity comprises forming a cavity that is substantially trapezoidal shaped (Figure 7).

With respect to claim 11, Ishinaga teaches the method wherein forming the ceramic cavity comprises forming a cavity that is substantially oval shaped (Figure 2).

With respect to claim 12, Ishinaga teaches the method wherein forming the ceramic cavity comprises forming a cavity that is substantially circular shaped (Figure 12).

With respect to claims 15-17, Ishinaga teaches the method wherein positioning the light emitting diode comprises determining a location between the bottom and the top of the cavity to locate the light emitting diode. It is an inherent characteristic of a light-emitting device to have a viewing angle. Based on the structure of the reference light emitting diode package, positioning the light emitting diode within the cavity will result in light emitting only within an angle created by the cavity. It is therefore inherent in the structure of the device that positioning the light emitting diode within the cavity will achieve a predetermined viewing angle of the light emitting

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diode while moving the light emitting diode closer to the bottom of the cavity will reduce the viewing angle and moving it closer to the top of the cavity will increase the viewing angle (Refer to Column 4, Lines 57-65).

With respect to claim 18, Ishinaga teaches the method described above. However, the method fails to teach the optically transparent material forming a domed layer over the LED. Collins III et al. teaches the method wherein depositing the optically transparent material in the cavity to protect to light emitting diode comprises forming a domed layer 66 of the optically transparent material over the light emitting diode (Paragraph 34). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Ishinaga method with the teachings of Collins III et al. because adding a domed layer increases the area in which light from the light emitting diode refracts thereby increasing the overall illumination of the device.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga and Collins III et al. as applied to claims 1-18 above, and in further view of Abe (US Patent 5,177,593).

With respect to claim 19, Ishinaga teaches the method described above. However, the method fails to teach the optically transparent material forming a concaved layer over the LED. Abe teaches the method wherein depositing the optically transparent material in the cavity (Figure 3) to protect the light emitting diode 23 comprises forming a concaved layer 24 of the optically transparent material over the light emitting diode (Column 1, Lines 50-54). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Ishinaga method with the teachings of Abe because having a concaved layer over the LED provides the ability to focus the emitted light in a more concentrated area.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sorg (US Patent 6,746,295) teaches a method of producing a LED with a domed lens. Idemitsu (JP 11-181267) teaches the composition of a polycarbonate resin containing titanium oxide powder and phosphorus. Morris (US Patent 6,705,748) teaches a lamp that uses a ceramic body because of its thermal properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Makiya whose telephone number is (571) 272-2273. The examiner can normally be reached on Monday-Friday 7:30am - 4:00pm (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee Luebke can be reached on (571) 272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJM 09/07/2005

  
RENEE LUEBKE  
PRIMARY EXAMINER